REMARKS

Claims 1-5, 7-16, 19-20 and 22-29 are pending. Claims 4, 8-9, 11, 14, 19, 23 and 26 have been allowed. Claims 1-3, 5, 7, 10, 12, 15-16, 20, 22, 24 and 27-29 have been amended. Claims 6, 17-18 and 21 have been cancelled. In view of the following, all of the pending claims are in condition for allowance. If, after considering this response, the Examiner does not agree that all of the claims are allowable, then it is respectfully requested that the Examiner schedule a teleconference with the Applicant's attorney to further the prosecution of the application.

Rejection of claims 1, 2, 5, 7, 10, 12, 13, 15, 16, 20, 22, 24, 25 and 27-29 under §103(a) as being unpatentable over Cheung et al. (US 6,324,030) in view of Sacks et al. (US 6,426,845)

Claim 1

Claim 1, as amended, recites a position-burst demodulator including an input circuit operable to receive even and odd samples of a first servo position burst, to add the even samples to generate a first sum and to add the odd samples to generate a second sum; an intermediate circuit operable to square the first and second sums, and to add the squared first and second sums to generate a third sum; and an output circuit operable to calculate the square root of the third sum.

For example, referring, *e.g.*, to FIGS. 5-7 and paragraphs 31-40 of the present application, a position-burst demodulator 70 includes an input circuit (adder) 72 operable to receive even and odd samples of the servo position burst, to add the even samples to generate a first sum E and to add the odd samples to generate a second sum O. An intermediate circuit 74,76 is operable to square the first sum E^2 and square the second sum O^2, and to add the squared first and second sums to generate a third sum $E^2 + O^2$. An output circuit 78 is operable to calculate the square root of the third sum. It should be noted that the sequence of samples of the servo position burst is divided into alternating even and odd numbered samples. The even samples are handled separately by circuits 72a and 74a, and the odd samples are handled separately by circuits 72b and 74b. As a result, the even and odd samples are

effectively averaged separately to filter out noise that may contaminate the burst sinusoid.

In contrast, Cheung et al. neither discloses nor suggests a position-burst demodulator including an input circuit operable to receive even and odd samples of a first servo position burst, to add the even samples to generate a first sum and to add the odd samples to generate a second sum; an intermediate circuit operable to square the first and second sums, and to add the squared first and second sums to generate a third sum; and an output circuit operable to calculate the square root of the third sum. Instead, Cheung et al. discloses a PES demodulator 130 including a Hilbert Transform filter 154 that multiplies a Hilbert Transform coefficient H_i to each data value x_n, and then sums the product $(H_i)(x_{n-i})$ to produce y_n (col. 7, lines 19-55). A squarer 164 then squares each value y_n to produce z_n (col. 8, lines 1-15). Finally, a PES burst accumulator 168 adds the values z_n (col. 8, lines 15-22). However, all of this has nothing to do with separating the servo position burst into separate even and odd numbered samples, summing the even samples separately from the odd samples, and then squaring the sum of the even samples separately from the sum of the odd samples. In fact, after reviewing Cheung et al. in its entirety, the Applicant's attorney is unable to find any mention of these limitations as recited in claim 1.

Similarly, Sacks et al. neither discloses nor suggests a position-burst demodulator including an input circuit operable to receive even and odd samples of a first servo position burst, to add the even samples to generate a first sum and to add the odd samples to generate a second sum; an intermediate circuit operable to square the first and second sums, and to add the squared first and second sums to generate a third sum; and an output circuit operable to calculate the square root of the third sum. Instead, Sacks et al. discloses an asynchronous demodulator 300 having a PES amplitude estimator 422. The PES amplitude estimator 422 simply squares Fourier coefficients β and α, sums the squared Fourier coefficients $\beta^2 + \alpha^2$, and then takes the square root. However, this again has nothing to do with separating the servo position burst into separate even and odd numbered samples, summing the even samples separately from the odd samples, and then squaring the sum of the even samples separately from the sum of the odd samples. In fact, after reviewing Sacks et al. in its

entirety, the Applicant's attorney is unable to find any mention of these limitations as recited in claim 1. Therefore, because the teachings of Cheung et al. do not include the limitations as recited in claim 1, modifying the teaching of Cheung et al. by incorporating the teachings of Sacks et al. would not satisfy the limitations of claim 1.

Furthermore, it should be noted that Sacks et al. is directed to an asynchronous demodulator. Sacks et al. discusses a null type servo pattern that typically includes a phase field and a position error field (col. 1, lines 63-67 to col. 2, lines 1-48). A phase-locked loop (PLL) is typically used to acquire the phase of the phase field, and this phase information is used for demodulating the position error field. *Id.* Sacks states that the phase fields must therefore be sufficiently long to enable the PLL to lock onto the phase and frequency of a corresponding readback signal, and that such long fields take up space that could otherwise be used for storing data. *Id.* Thus, there is no suggestion or motiviation to combine Sacks et al., which discloses an asychronous demodulator as an alternative to synchronous demodulators, with the teachings of Cheung et al. which is directed to a synchronous demodulator.

Claims 5, 10, 12, 15, 16, 20, 24 and 27-29

Claims 5, 10, 12, 15, 16, 20, 24 and 27-29 , as amended, are patentable for reasons similar to those recited above in support of the patentability of claim 1.

Claims 2, 7, 13, 22 and 25

Claims 2, 7, 13, 22 and 25 are patentable by virtue of their respective dependencies from independent claims 1, 5, 12, 20 and 24.

Rejection of claim 3 under §103(a) as being unpatentable over Cheung et al. and Saks et al., and further in view of Patapoutian et al. (US 5,661,760)

Claim 3, as amended, is patentable by virtue of its dependency from independent claim 1.

CONCLUSION

In view of the foregoing, all pending claims are in condition for allowance. Therefore, the issuance of a formal Notice of Allowance at an early date is respectfully requested.

If, after considering this response, the Examiner does not agree that all of the claims are allowable, then it is respectfully requested that the Examiner contact the Applicants' attorney, Paul Rusyn, at (425) 455-5575.

In the event additional fees are due as a result of this amendment, you are hereby authorized to charge such amount to Deposit Account No. 07-1897.

DATED this 13th day of October, 2005.

Respectfully Submitted,

GRAYBEAL JACKSON HALEY LLP

Paul F. Rusyn
Attorney for Applicant
Registration No. 42,118
155 – 108th Ave. NE, Suite 350
Bellevue, WA 98004-5973
(425) 455-5575

Enclosure: return postcard